Farmers' interpretation of pesticide pictograms

In Cameroon, labels on containers of pesticides for cotton pest control do not indicate the product toxicity or instructions for use. Pesticide labels could be improved with simple illustrations. How effective are the FAO pictograms which were designed to facilitate the comprehension of these labels by smallholders worldwide?

ORSTOM (Institut français de recherche scientifique pour le développement en coopération) conducted a survey to assess smallholders' understanding of the FAO pictograms. The results revealed many incorrect interpretations which could lead to dangerous situations, indicating that the pictogram symbols are not universally understandable.

The survey was carried out in 1992 in the region surrounding the Institut de recherche agronomique (IRA) at Maroua (Cameroon). A random sample was taken of 203 people, including eight women, from 20 ethnic groups. Their ages ranged from 22 to 46. Most of those surveyed were illiterate (76%), and the others had generally spent only 2 or 3 years at primary school. Most of them were rural people (87% were farmers). The discussions were in Fulani, the dominant language of the region.

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The researcher conducting the survey showed each respondent a series of 13 pictograms designed by the Food and Agriculture Organization of the United Nations (FAO), one by one, and asked "If you saw these drawings on a bottle of insecticide for treating cotton, what might they mean?"

A broad range of interpretations

In Table 1, all interpretations obtained for each pictogram are classified according to their accuracy:

– not understood: the pictogram was not interpreted at all;

– correct: the pictogram was correctly interpreted;

– partial: the message was not entirely understood;

– incorrect: the message was poorly understood.

Taking a lack of understanding of 10% as the pictogram elimination threshold, only pictograms 3, 4, 7 and 8 are suitable for use.

The analysis must be taken a step further. It is important to be wary of correct replies as the reasoning behind them can be incorrect. For instance, there was a high percentage of correct replies for pictogram 7 (83%), i.e. "glasses should be worn", but many of the interpretations were dubious, such as:"so as not to have the sun in one's eyes during treatment", "to be able to clearly see the pest insects, contents of the bottle, the plants to be treated", and even "to look good during treatment".

Table 1. Pictograms: definitions, percentage of replies for 203 respondents. The pictogram was considered unsuitable when the lack of understanding was greater than 10 %.

Pictogram		Not Understood	Correct	Partial	Incorrect
	1 How to handle the concentrated liquid	17	4.5	71	7.5
	2 How to handle the dry concentrate	14	0.5	55	30.5
	3 How to apply the product	1.5	64	4	30.5
	4 Wear gloves	6	89.5	0	4.5
	5 Wear breathing apparatus	28	0	55	17
	6 Wear a protective mask covering the nose and mouth	24	28	40.5	7.5
	7 Wear protective glasses	3	83	14	0
	8 Wear boots	2	81	15.5	1.5
	9 Wash after using pesticides	20.5	58.5	5	16
	10 Keep under lock and key, out of the reach of children	54.5	39	0	6.5
	11 Danger	43	39.5	0	17.5
	12 Dangerous, harmful to animals	17.5	58	0	24.5
	13 Dangerous, harmful to fish. Avoid contaminating lakes, rivers, ponds or water courses	26	11	46.5	16.5

References

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Food and Agricultural Organization of the United Nations, 1985. Pictograms for pesticides labels. For safe pesticide handling. Supplement to the FAO recommendations for good pesticide labelling. Rome, Italy, FAO.

There were many correct answers for some of the pictograms (e.g. n°s 9, 12 and 13), but the interpretations were so incorrect and dangerous that they would have to be ruled out. 1.5% of the replies for pictogram 9 suggested that "dirty water can be disinfected with the product". There were also alarming interpretations for pictogram 12, such as using the pesticide to "fatten, heal or vaccinate cattle and chickens" (17.5%), and even to "kill their parasites" (2%).

In fact, there was a multitude of incorrect and dangerous replies for all of the pictograms, such as:

– "the product should be poured into a glass and drunk" (pictogram 1: 2.5%);

– "the product can be used for fishing" or "to feed fish" (pictogram 13: 8%);

– "the product should be poured onto seeds" (pictogram 2: 4%);

– "keep the product on the window ledge" (pictogram 10: 1%).

Interpretations were sometimes partly correct but contained a clause meaning that the recommendation would not be followed up. For instance, "after treatment, wash your face with tap water" (pictogram 9). Since tap water is not generally available and well water is used, there is a risk that farmers (having registered the idea of "tap water") will not wash after treatment.

While the skull and crossbones depicted in pictogram 11 is a clear warning of serious danger for Westerners, many rather surprising interpretations were obtained in the survey:

– many respondents did not understand (43%);

– "drinking this product makes you sad" (4%);

– "a scarf should be tied over the mouth so as not to inhale the product" and "cover the mouth and nose" (3%)

– "you should laugh after destroying the insects" (1%);

– "if you touch the product, evil spirits will attack you" (1%).

A cultural problem

Pictograms should be used as memory-joggers to recall information already provided elsewhere. They cannot replace the essential need for agricultural supervisors to instruct farmers as to safe ways of utilizing chemical pesticides.

The results of the present survey highlight the fact that no pictograms are completely universal. Designers should produce pictograms that differ according to geocultural zones rather than aiming at universal applications. Pictograms such as the skull and crossbones (n° 11) to signify serious danger and a tap (n° 9) for water are not at all suitable for sub-Saharan Africa.

Abstract... Resumen... Résumé

H. TOURNEUX – **Farmers' interpretation of pesticide pictograms.**

A survey was carried out in the Cameroon cotton belt on farmers' understanding of FAO pictograms that illustrate safety measures to be taken in the use of pesticides. Of the thirteen drawings proposed to supplement the pesticide labels, four appeared to be suitable since their meaning was understood in over 90% of replies. All others led to dangerous or erroneous interpretations.

Key words: pesticides, hygiene, health, Cameroon.

H. TOURNEUX – **La interpretación campesina de los pictogramas fitosanitarios.**

En la zona algodonera de Camerún, se ha llevado a cabo una encuesta sobre la manera en que los agricultores comprenden los pictogramas de la FAO destinados a ilustrar las medidas de seguridad que se deben tomar al utilizar productos pesticidas. De los trece dibujos propuestos para completar las etiquetas de los productos químicos, cuatro parecen convenientes, pues la tasa de comprensión de su mensaje supera el 90% de las respuestas. Los demás inducen interpretaciones peligrosas o erróneas.

Palabras clave : productos fitosanitarios, higiene, salud, Camerún.

H. TOURNEUX – **L'interprétation paysanne des pictogrammes phytosanitaires.**

Dans la zone cotonnière du Cameroun, une enquête a porté sur la manière dont les agriculteurs comprennent les pictogrammes de la FAO, destinés à illustrer les mesures de sécurité à prendre en utilisant des produits pesticides. Sur les 13 dessins proposés pour compléter les étiquettes des produits chimiques, quatre paraissent convenables, car le taux de compréhension de leur message dépasse 90 % des réponses. Tous les autres induisent des interprétations dangereuses ou erronées.

Mots-clés : produits phytosanitaires, hygiène, santé, Cameroun.